

## CLAIMS

We claim:

1. A method of mammalian cell seed-train expansion comprising:
  - a) providing a bioreactor having an inoculation well,
  - b) delivering a suspension of mammalian cells to media within the inoculation well,
  - c) controlling environmental conditions and composition of said media so that cell growth within the inoculation well is optimized,
  - d) growing the mammalian cells until a predetermined cell density is reached within said well, and
  - e) increasing the media volume incrementally while maintain optimum environmental conditions and environmental growth conditions until the bioreactor is filled to a predetermined volume and cell density.
2. The method of claim 1, wherein the mammalian cells are cryopreserved cells.
3. The method of Claim 1, wherein the mammalian cells are selected from the group consisting of chinese hamster ovary cells and baby hamster kidney cells.
4. The method of claim 1, wherein the cells are obtained from a cryobag.

5. The method of claim 1, wherein the cells are obtained from a cryovial.

6. An improved fermentation bioreactor comprising:

- a bioreactor, said bioreactor defining a chamber,
- said chamber having exterior and interior sides, a top member, wall member, and base member, said base member having an orifice,
- an inoculation well, said well defining a chamber having exterior and interior sides, top and base members, a wall member, and
- said well further including an orifice in said top member joined to said bioreactor orifice, so that a channel is formed between the well chamber and the bioreactor chamber to permit unrestricted movement there between.

7. An improved bioreactor as recited in Claim 6, in which the inoculation well chamber is provided with sensors selected from the group consisting of: pH sensor, oxygen sensor, temperature sensor, and optical sensor.

8. An improved bioreactor as recited in Claim 6, in which the inoculation well is provided with a communication orifice through the wall of said well to permit the introduction of media and agents into the well chamber.

9. An improved bioreactor as recited in Claim 6, in which the inoculation well is provided with a mechanical arm to permit stirring of the contents of said well.